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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,776	07/08/2005	Toshihiko Ohashi	0216-0516PUS1	1474

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FALLS CHURCH, VA 22040-0747

EXAMINER
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CHANG, VICTOR S

ART UNIT	PAPER NUMBER
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1771

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/22/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

Application No.

10/541,776

Applicant(s)

OHASHI ET AL.

Examiner

Victor S. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Introduction*

1. Applicants' amendments and remarks filed on 1/26/07 have been entered. Claims 1, 14 and 15 have been amended. Claim 4 has been cancelled. Claims 1-3, 5, 14 and 15 are active. Since claims 6-13 have been previously withdrawn, their claim identifiers must be corrected as "(withdrawn)" in the next reply. See 37 CFR 1.121 or 1.4. Any future non-compliant amendment will result in a Notice on Non-compliant amendment.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In view of the amendment, the grounds of rejection have been rewritten as set forth below.

### *Claim Rejections - 35 USC § 101*

4. Claims 1-3, 5, 14 and 15 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

In independent claims 1, 14 and 15, the recitation "... porous silica layer is comprised of a plurality of moniliform silica strings, each comprising a plurality of primary silica particles which are linked in rosary form" is unsupported by the specification. More particularly, since the specification discloses that "the coating composition comprises a product which is obtained by a method comprising: mixing a dispersion of moniliform silica strings with a hydrolyzable group-containing silane to obtain a mixture, wherein each of the moniliform silica strings

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comprises a plurality of primary silica particles which are linked in rosary form; and subjecting the obtained mixture to hydrolysis and dehydration-condensation” [page 9, line 19 through page 10, line 2], and applicants have also admitted at Remarks page 10 that the porous silica of present invention (as shown in Fig. 5) is formed *from* moniliform silica strings (as shown in Fig. 2 of Watanabe et al.) *after condensing and bonding to each other*, clearly the original “moniliform silica strings” have *necessarily been transformed into a porous structure of bonded silica particles and lost their original moniliform structures*, as a result the abovementioned limitation is unsupported, and it is inoperative to retain moniliform silica strings in the product.

#### ***Claim Rejections - 35 USC § 112***

5. Claims 1-3, 5, 14 and 15 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

#### ***Rejections Based on Prior Art***

6. Claims 1-3, 5, 14 and 15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lange et al. [US 4816333].

Lange’s invention [col. 2, lines 36-42; col. 3, lines 7-10; col. 4, lines 11-55] relates to an antireflective polymeric substrate having a porous silica coating thereon. The porous coating comprises a continuous gelled network of voids between the silica particles. A colloidal solution of silica particles from which the gelled network is obtained is capable of providing an open

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porosity of about 25 to 70 percent when dried to provide a refractive index between 1.20-1.30. If the open porosity is too small, the properties of the coating, such as adhesion and antireflectance may be reduced. If the open porosity is too large, the coating is weakened and may have reduced adhesion to the substrate. The average primary particle size of the colloidal silica particles is preferably less than about 70 Å to achieve good adhesion (abrasion resistance) of the coating to the substrate and antireflection properties. Fig. 2 shows the antireflective property of a silica coated polyethylene terephthalate (PET) film.

For claim 1, Lange is silent about: 1) the porous silica layer is comprised of a plurality of moniliform silica strings; and 2) the porous structure. However, regarding item 1), since the limitation "porous silica layer comprised of a plurality of moniliform silica strings" is unsupported by the specification, it is not considered. Even if it is considered, it is presumed to be a product-by-process limitation of *forming* the porous silica layer *from* a silica sol of colloidal moniliform silica strings. However, since the method limitation has not been shown on the record to produce a patentably distinct article, the formed article is rendered *prima facie* obvious, and the process is not giving patentable weight. Regarding item 2), while Lange is silent about the size of the pore opening area and its relation to the primary particle size, since Lange discloses generally the same subject matter (a porous silica coating), made by the same chemistry (a gelled network of colloidal silica particles having the same average primary particle size [specification, Examples 1 and 13, etc.]), the same resultant product property for the same use (abrasion resistant antireflective coating), and specifically teaches that workable porosity is critical for providing coating adhesion and instantly claimed refractive index, a workable size of the pore opening area and its relation to the primary particle size are deemed to be either

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anticipated by Lange, or obvious routine optimization to one of ordinary skill in the art of porous silica coated antireflective film.

For claims 2 and 3, even if the characteristics of the moniliform silica strings are considered, they are presumed to be elements of a product-by-process limitation, as set forth above, and since the method limitations have not been shown on the record to produce a patentably distinct article, the formed article is rendered *prima facie* obvious.

For claim 5, since Lange teaches the same PET substrate for the same use as the instant invention, the hardness of the substrate is deemed to be inherent to the PET film.

For claims 14 and 15, since they claim essentially the same scope as claims 1-4, they are also rejected for the same reasons as set forth above.

### ***Response to Argument***

7. Applicants argue at Remarks pages 9-10 that the presence of moniliform silica strings in the porous silica layer of the present invention is apparent, as evidenced by the differences between Fig. 9 (showing a porous silica layer of prior art formed from separate non-linked silica particles) and Fig. 5 (showing a porous silica layer of present invention formed from moniliform silica strings). However, the examiner maintains that while Fig. 5 shows a porous silica structure of bonded silica particles *formed from* the original moniliform silica strings, the original moniliform silica strings, defined as having an average length less than 200 nm [specification page 37, line 9], are no longer present in the porous silica layer. Also, it is unseen how the structure of separate non-linked silica particles for forming the porous silica layer in Fig. 9 is relevant for establishing the presence of moniliform silica strings in Fig. 5.

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Applicants argue at pages 11-15 that Fig. 5 shows that due to the presence of moniliform silica strings, the present invention has a large number of large pores. However, while Fig. 5 shows large pores of bonded silica particles, the examiner maintains that there is no evidence showing that the moniliform silica strings is retained and present in Fig. 5. More particularly, applicants appear to have confused the “large pores” as a definition of “moniliform silica strings”, and overlooked that these terms refer to distinctly different elements. While moniliform silica strings may advantageously form large pores in the resultant porous silica layer, the resultant porous silica layer is comprised of three-dimensionally bonded silica particles, the original moniliform silica strings having an average length less than 200 nm no longer exist.

Applicants argue at pages 16-19 that Lange teaches or suggests neither the moniliform silica strings nor the coating composition comprising the moniliform silica strings, and only describes the use of separate non-linked silica particles as shown in the Comparative Examples of the present application, and these Comparative Examples show poor properties in general. However, regarding the moniliform silica strings, while Lange is silent about forming moniliform silica strings in the coating solution, the structure of moniliform strings is clearly a transient structure during manufacturing process, and is presumed to be a product-by-process limitation of *forming* the porous silica layer *from* a silica sol of colloidal moniliform silica strings. Even if it is considered, since the process limitation has not been shown on the record to produce a patentably distinct article, the formed articles are rendered *prima facie* obvious, and this limitation at the present time has not been given patentable weight. Regarding the association between colloidal silica particles, applicants are reminded that the moniliform silica string strings of instant invention are prepared according to Watanabe’s teaching, and Watanabe

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discloses that the moniliform silica string is also merely associated silica particles in colloidal state at pH 2-6 [col. 7, line 15], which overlaps with the suitable pH range of 3.5-4.0 taught by Lange [col. 5, line 33], consequently applicants' argument that Lange teaches separate non-linked silica particles is clearly erroneous, because despite Lange's silence about the formation of moniliform string structure, it is unseen that how the association between silica particles in the same colloidal chemistry is different between Lange and the instant invention, and nowhere has Lange disclose that his silica particles are separate and non-linked. Finally, regarding the generally poor results in the Comparative Examples, applicants are reminded that since these Comparative Examples are not relied upon as basis of rejection, therefore applicants' arguments are misplaced. Furthermore, since these Comparative Examples describe separate non-linked silica particles, which are incommensurate with Lange's teaching of inherently associated (linked) colloidal silica particles, they are also irrelevant to the relied upon prior art of Lange.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37



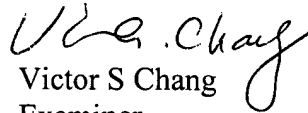
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S. Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Victor S Chang  
Examiner  
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2/19/2007